

## **REMARKS**

In the Official Action mailed on **9 August 2007**, the Examiner reviewed claims 1-42. Claims 1-42 were rejected on the ground of nonstatutory double patenting over claims 1-54 of U.S. Patent No. 7,142,540. Claim 29 was rejected under 35 U.S.C. § 102(e) based on Boyd et al. (US Pub. No. 2006/0259644 hereinafter “Boyd”). Claims 1-28, and 30-42 were rejected under 35 U.S.C. § 103(a) based on Boyd, and Burton et al. (USPN 7,107,359 hereinafter “Burton”).

### **Double Patenting Rejection**

Claims 1-42 were rejected on the ground of nonstatutory double patenting over claims 1-54 of US Patent No. 7,142,540.

Applicant respectfully submits the attached terminal disclaimer with respect to the above US Patent No. 7,142,540 to obviate the nonstatutory double patenting rejection.

### **Rejections under 35 U.S.C. § 102(e) and § 103(a)**

Claim 29 was rejected under 35 U.S.C. § 102(e) as being anticipated by Boyd. Claims 1-28, and 30-42 were rejected as being unpatentable over Boyd in view of Burton. Applicant respectfully disagrees because Boyd and Burton do not teach interleaving Sends and RDMA Read responses in a **single** receive queue, and allowing multiple queue pairs and virtual lanes to **share a single contiguous** memory structure. Using a shared single contiguous memory for multiple queue pairs means there is no need to maintain separate and/or dedicated memory structure for each queue pair and/or virtual lane, thus allowing more flexibility and scalability (see page 10, ll. 10-16 and page 3, ll. 3-5 of the instant application).

Specially, Boyd discloses a method for management of a receive queue by turning work request into **work queue entries** and inserting these work queue entries into the receive queue (see paragraph [0011] ll. 5-8 of Boyd). In particular, Boyd teaches away from interleaving Sends and RDMA Read responses in a single receive queue by assigning **each queue pair** a send working queue and receive work queue (see paragraphs [0071], [0085], and Figs. 4-5 of Boyd). Although Examiner made a reference to paragraph [0068] of Boyd for using a single IP-suite offload engine, this IP-suite offload engine is different from a single contiguous memory structure. The IP suite offload engine is used to offload the IP protocol processing to the hardware (see paragraph [0006] of Boyd). The IP-suite offload engine supports thousands of queue pairs and each queue pair consist of its own send work queue and a receive work queue (see paragraph [0068] of Boyd).

In contrast, embodiments of the present invention provide a system for processing interleaved Sends and RDMA Read responses in a **single InfiniBand queue pair receive queue** (see page 4, ll. 10-17). In addition, embodiments of the present invention also provide a system for buffering traffic received via InfiniBand queue pairs and virtual lanes in a **single shared memory structure** (see page 8, ll. 5-15 of the instant application). In comparison, Boyd discloses using multiple queues for multiple queue pairs, whereas embodiments of the present invention use a single contiguous memory structure shared by multiple queue pairs and virtual lanes. Note that dedicated queues require each queue pair and virtual lane to be provided with worst-case buffering thus resulting in inefficient memory use (see page 2, ll. 19-26 of the instant application).

Burton, on the other hand, discloses using host-fabric adapters for connecting to a switched fabric of a data network. Similar to Boyd, Burton also teaches away from maintaining a single contiguous memory structure for multiple

queue pairs by assigning **each working queue pair** separate inbound and outbound queues (see col. 12, ll.3-28 and Fig. 6 of Burton).

There is nothing in Boyd and Burton, either explicit or implicit, that teaches sharing a single contiguous memory structure among multiple queue pairs and virtual lanes, and interleaving Sends and RDMA reads responses in a single receive queue.

Accordingly, Applicant has amended claims 1, 13, 17, 26, 29 and 39 to clarifies that the present invention allows a single contiguous memory structure to be shared by multiple virtual lanes and queue pairs, and the Sends and RDMA responses are interleaved in a single receive queue. These amendments find support in page 12, ll. 22-27, and page 40-44, ll. 22-18 of the instant application. Claim 2 has been cancelled without prejudice. No new matter has been added.

Hence, Applicant respectfully submits that independent claims 1, 13, 17, 26, 29 and 39 as presently amended are in condition for allowance. Applicant also submits that claims 3-12, which depend upon claim 1, claims 14-16, which depends upon claim 13, claims 18-25, which depend upon claim 17, claims 27-28, which depend upon claim 26, claims 30-38, which depend upon claim 29, and claims 40-42, which depend upon claim 39, are for the same reasons in condition for allowance and for reasons of the unique combinations recited in such claims.

## **CONCLUSION**

It is submitted that the present application is presently in form for allowance. Such action is respectfully requested.

Respectfully submitted,

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